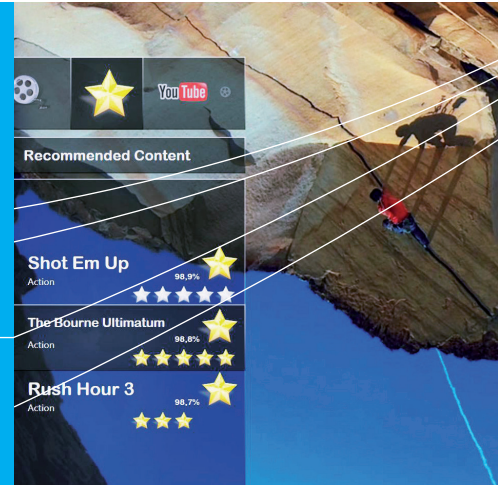
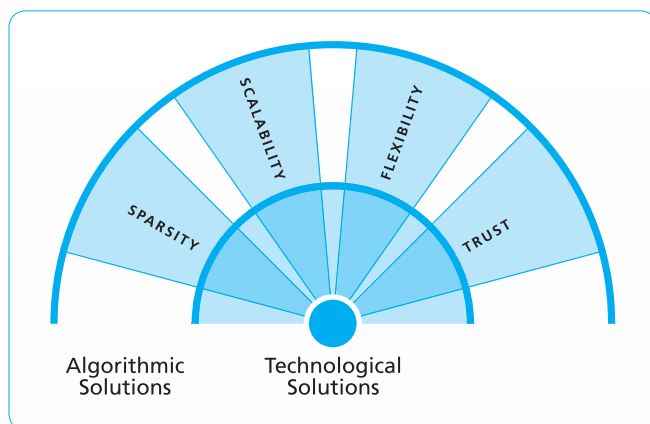


SMART Recommendations

Your Personal Media Guide for TV, Mobiles, and the Web



SMART Recommendations is a parallel computing recommendations engine that enables Internet businesses (online retailers, real estate business, news services) and rich media and entertainment services (VoD, personalized IPTV channels, music recommendations) to deliver targeted experience, drive revenue, and build customer loyalty by matching the right content to the right people at the right time.



The SMART Recommendations solution of Fraunhofer FOKUS crosses several technological domains.

SMART Recommendations can also be used in applied research for rapidly prototyping of Web-based recommender systems. This allows researchers to concentrate on developing new algorithmic solutions without worrying about the required technology.

The parallel computing technology translates online consumer activity into automatically updated content and consumer relationships, and powers a rich variety of recommendation features.

These include:

- Related-item recommendations
- Content-based filtering
- Collaborative filtering
- Create and manage user profiles and item meta data

Integration of SMART Recommendations into existing Web or mobile applications is quick and simple. Features can be modified easily and ongoing product maintenance requirements are minimal. Unleash the power of SMART Recommendations in your company today!

Related-Item Recommendations

Present items similar to the ones consumers are looking at, enabling cross-sells between products, categories, genres, and other item features.

Recommender Systems

Personalization and recommender systems play an important role in the Long Tail. Using machine learning and information filtering techniques, recommender systems serve as a knowledge discovery tool that can make personal recommendations and help customers find products they wouldn't otherwise. During the last decade, they have become an important area of research while achieving major success in e-commerce and entertainment Websites. The best-known recommender systems are those developed by Amazon, Netflix, and Last.fm.

Content-Based Filtering

The Content-Based Filtering presents one-to-one recommendations based on a unique consumer profile of implicit and explicit

feedback such as searches, content, and product information. That includes views, purchases, and ratings.

Collaborative Filtering

The Collaborative Filtering connects customers with similar interests, giving them a way to explore content and products that others like them are viewing or purchasing.

Features at a Glance

SMART Recommendations is a complete parallel computing recommendations engine that provides a model-based framework for learning individual user profiles and predicting relevant items (movies, news, etc.) from a large catalogue of possible candidates. User profiles are created from customer feedback as well as from an aggregation of customer preferences and interests. New recommendation algorithms can be dynamically and flexibly built from a predefined set of computational components. Custom components can be implemented as needed.

Computation Model

The SMART Recommendations engine is built on a generalized computation model for recommendations. It uses a computation tree as a representation of all computation steps of a recommendation. The computation tree is made up of calculation and data access nodes, with input and output data propagated along the edges of the tree in the form of matrices. The tree can be completely customized in the run-time configuration, and a chain of filters can be applied to the output of a node on a per

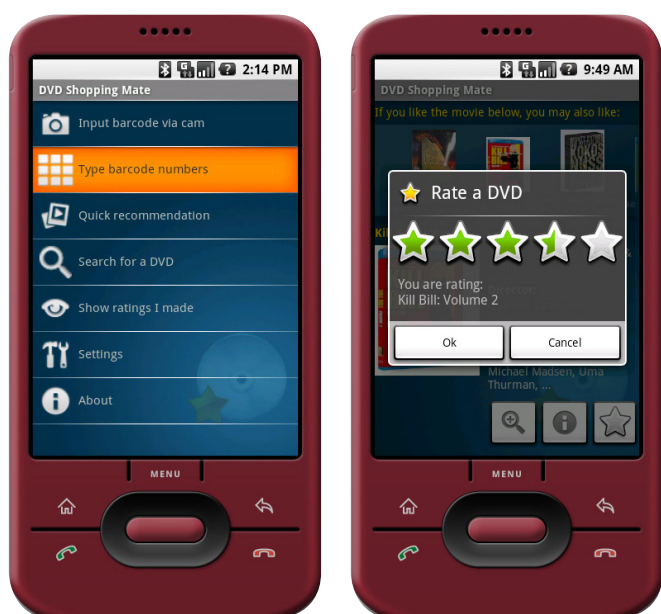
vector basis. Data access nodes form the leaves of the computation tree, while matrices contain additional meta data that define the semantics and domains of individual rows and columns of a matrix.

SMART Recommendations Components

Computation tree nodes and filters function as components accessed through abstract interfaces. Our engine also provides a set of basic components and an open programming interface for the creation of custom node and filter components.

Fraunhofer FOKUS G-Clerk Application

To show the potentials of the SMART Recommendations engine in the field of value added services using mobile end-devices in converged IPTV and media ecosystems, Fraunhofer FOKUS has developed a Google Android application called "G-Clerk". The application uses the SMART Recommendations engine to support customers who, for example, are looking for new DVDs to rent or buy. The mobile phone application then offers recommendations of other movies matching personal interests based on a picture of a DVD cover or a product barcode. The recommended content can be rated and users can request additional information or movie trailers.



Screenshots of the mobile demonstration application "G-Clerk"

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More information about SMART Recommendations can be found at → <http://www.fokus.fraunhofer.de/go/fame>